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(54) Title: FRAGRANCE ENHANCING COMPOSITIONS WITH NON-POLYCYCLICS

(57) Abstract: This invention relates to fragrance enhancing compositions which are capable of controlling malodor from a human body to a significant extent thereby reducing the overall amount of fragrance required to achieve a satisfactory cosmetic product, especially an underarm product. The fragrance enhancing compositions of this invention are made by supplementing the conventional fragrance in an antiperspirant and/or deodorant composition with a fragrance enhancing component comprising at least six members from a selected group of non-polycyclic, non-nitromusk materials.

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## FRAGRANCE ENHANCING COMPOSITIONS WITH NON-POLYCYCLICS

Field of the Invention

- 5           This invention relates to fragrance enhancing compositions which may be used in a variety of products, especially in underarm products such as deodorants and antiperspirants, to give a deodorant effect against malodor from underarm perspiration and enhance the performance of the fragrance components of such products.

Background of the Invention

- 10           A variety of approaches have been and continue to be taken for reducing and or eliminating human body malodor, especially from underarm perspiration. These approaches include reducing/eliminating perspiration itself, reducing/eliminating odor at the root cause (for example, interfering with the degradation of perspiration on skin caused by the action of bacteria) as well as masking the odors themselves.

- 15           U.S. Patent 5,540,853 to Trinh et al describes personal treatment compositions and cosmetic compositions containing enduring perfume wherein the enduring perfume is evaluated by a "calculated log P" parameter. PCT application WO 97/30689 to Trinh et al describes personal treatment compositions which can be used as leave-on products which are evaluated by the same criteria.

- 20           EP patent application 0 760 243 A1 to Groverman et al describes the use of allylic perfumes as a malodor reduction agent.

- EP patent application 0 545 556 A2 to Behan et al teaches a perfume composition containing at least 50% by weight of specific components (in minimum percentages of each component) selected from the group consisting of ethers,  
25   salicylates, alcohols, acetate/propionate esters and methyl ethyl ketones where members of at least 4 of the groups must be included.

          U.S. Patent Number 5,601,809 teaches the neutralization of axillary malodor.

          Various references which describe evaluation of underarm deodorants or methods of evaluating products used as deodorants include P.M. Baxter et al,

International Journal of Cosmetic Science, Volume 5, 85-95 (1983); Chemical Senses, Volume 13, No. 3, 463-471 (1988); J.A. Killian, J. Soc. Cosmetic Chemists, Volume 3, 30-76 (1952), incorporated by reference in their entirety herein.

Specific studies of selected fragrance agents include A. Baydar et al, Chemical Senses, Volume 18, No. 6, 661-668 (1993) (olfactory threshold for androstenone and galaxolide); Chemical Senses, Volume 18, No. 3 245-256 (1993) (mutual cross adaptation of the volatile steroid androstenone and a non-steroid perceptual analog); L.J. Flett, J. Soc. Cosmetic Chemists, Volume 1, 304-310 (1949) (deodorant properties of nacconol).

U.S. Patent 5,354,737 to Barr et al describes selected fragrancing compositions such as Tonalid in deodorant products.

There is still a need, however, for improving the way that cosmetic compositions are fragranced. Thus it is an object of the invention to provide fragrancing compositions which are useful in controlling malodor, especially underarm malodor. It is another object of this invention to provide fragrance enhancing components of a fragrance system for cosmetic products so that the amount of the overall fragrance components can be reduced. It is a further object of the invention to provide fragrance enhancing components that improves the performance of conventional fragrancing products. It is still another object of the invention to reduce the overall irritation potential of cosmetic products by reducing the amount of fragrance needed to provide a satisfactory product. It is also an object of the invention to provide fragrancing compositions which exhibit improved ability to mask underarm odor. It is yet another object of the present invention to provide improved underarm products such as deodorants and antiperspirants containing such fragrancing compositions. These and other objects of the invention will become apparent from the following description of the invention.

#### Summary of the Invention

This invention relates to fragrance enhancing compositions which are capable of controlling malodor from a human body to a significant extent thereby substantially reducing the overall amount of fragrance required to achieve a satisfactory cosmetic

- product, especially an underarm product. The fragrance enhancing compositions of the invention are formulated with selected components with high olfactory impact properties and good substantivity (for example, 24 hour endurance) which are combined for controlling human malodor, especially underarm sweat malodor.
- 5 Particular components include non-polycyclic, non-musk materials as listed below.

Detailed Description of the Invention

- The fragrances made with the fragrance enhancing compositions of this invention are long lasting (enduring) as evaluated by accepted panel evaluations. The customary amount of fragrance in a cosmetic product (for example, an
- 10 antiperspirant/deodorant or a deodorant) is in the range of 0-1-10% (more particularly 1.0-3.0%) by weight based on the total weight of the composition. By using the compositions of this invention, however, it is possible to lower the amount of conventional fragrance normally used in such cosmetic products by an amount of at least 30% and, more particularly, by an amount in the range of 30-40%. It is
- 15 believed that the use of the listed ingredients allows for the use of lower amounts of conventional fragrances because the selected ingredients are more effective at masking malodors under the arm.

- The fragrance enhancing compositions of this invention are made by combining at least three and, more particularly, at least six components from the
- 20 group consisting of the following non-polycyclic, non-nitromusk materials:
- (1) Cinnamon Leaf Oil Ceylan {a Natural Essential Oil - predominantly 2-methoxy 4 allyl phenol};
  - (2) Vetiver Oil Java {a Natural Essential Oil - predominantly vetiverol alcohol};
  - (3) Orange Oil Morocco {a Natural Essential Oil - predominantly d-limonene};
  - 25 (4) Patchouli Oil {a Natural Essential Oil - predominantly Patchouli alcohol and Patchoulene};
  - (5) Iso Methyl Cedryl Ketone A {a multi-component proprietary formulation available from Fragrance Resources, Keyport, New Jersey; {this material is predominantly comprised of esters with additional minor amounts of alcohols,
  - 30 essential oils, terpenes and others};

- (6) Pelargonyl {a multi-component proprietary formulation available from Synarome, Bois Colombes, France; this material is comprised of mostly ethers with some portions of esters, alcohols and terpenes};
- (7) Cassis 345 B {a multi-component proprietary formulation available from
- 5 Firmenich SA, Geneva, Switzerland; this material is primarily composed of alcohols and esters with minor amounts of natural extracts from essential oils};
- (8) nonyl aldehyde;
- (9) decyl aldehyde;
- (10) alpha-iso-amyl-cinnamic {amyl cinnamic aldehyde};
- 10 (11) benzyl propionate;
- (12) Carvone Laevo {L-1-methyl-4-isopropenyl-6-cyclohexene-2-one};
- (13) beta-gamma hexenyl salicylate {cis-3-hexenyl salicylate};
- (14) Citral {3,7-dimethyl-2,6-octadienal};
- (15) Citronellol dextro {3-7-dimethyl-6-octen-1-ol};
- 15 (16) Cyclamen aldehyde {2-methyl-3-(para-isopropylphenyl) propionaldehyde};
- (17) Damascone alpha {2-buten-1-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)};
- (18) decyl aldehyde natural {Decanal Natural};
- (19) ethyl vanillin {3-ethoxy-4-hydrobenzaldehyde};
- (20) Eugenol {2-methoxy-4-allyl phenol};
- 20 (21) Florazon {4-ethyl-alpha, alpha-dimethyl-benzenepropanal};
- (22) Geraniol {2-trans-3,7-dimethyl-2,6-octadien-8-ol};
- (23) isobutyl quinoline {6-secondary butyl quinoline};
- (24) menthol laevo {5-methyl-2-isopropyl cyclohexanol};
- (25) menthone laevo {4-isopropyl-1-methyl cyclohexan-3-one};
- 25 (26) Iralia Total® {methyl ionone (mixture of isomers)};
- (27) methyl ionone gamma coeur {3-buten-2-one, 3 methyl-4-(2,6,6-trimethyl-2-cyclohex-1-yl)};
- (28) para-hydroxy phenyl butanone crystals {4-(4-hydroxyphenyl)-2-butanone};
- (29) 4-methyl-2-phenyl-3,6-dihydropyran;
- 30 (30) Rootanol 100® {2 -(1,1-dimethylethyl)-4-methyl-cyclohexanol};

- (31) Terpineol alpha {1-methyl-4-isopropyl-1-cyclohexen-8-ol};
- (32) Vanillin {4-hydroxy-3-methoxy benzaldehyde}; and
- (33) 2,4-diethoxy-5-methyl- pyrimidine}.

Detailed Description of the Invention

- 5       The term "Deo-Key™" is applied here to fragrance enhancing compositions which provide an improved way to control malodor, especially underarm malodor either alone or in combination with other fragrances of the type conventionally used in cosmetic compositions, especially those used in underarm products. The fragrance enhancing compositions (also called fragrance enhancing components herein) are
- 10       made by combining at least three (and more particularly six) members of the group consisting of the thirty-three ingredients listed above in proportions as follows wherein the amounts are based on the total amount of the fragrance component in the cosmetic product:
- (1) 0.5-1.0% Cinnamon Leaf Oil Ceylan;
  - 15       (2) 0.01-0.3% Vetiver Oil Java;
  - (3) 0.5-6.0% Orange Oil Morocco;
  - (4) 0.05-6.0% Patchouli oil;
  - (5) 0.05-4.0% Iso Methyl Cedryl Ketone A;
  - (6) 0.05-6.0% Pelargonyl;
  - 20       (7) 0.05-0.9% Cassis 345 B;
  - (8) 0.005-0.05% nonyl aldehyde;
  - (9) 0.005-0.05% decyl aldehyde;
  - (10) 0.05-10.0% amyl cinnamic aldehyde;
  - (11) 0.05-0.9% benzyl propionate;
  - 25       (12) 0.05-0.30% L-1-methyl-4-isopropenyl-6-cyclohexene-2-one;
  - (13) 0.05-0.30% cis-3-hexenyl salicylate;
  - (14) 0.05-0.70% 3,7-dimethyl-2,6-octadienal;
  - (15) 0.05-2.00% 3-7-dimethyl-6-octen-1-ol;
  - (16) 0.05-0.9% 2-methyl-3-(para-isopropylphenyl) propionaldehyde;
  - 30       (17) 0.05-0.9% 2-buten-1-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl);

- (18) 0.005-0.05% decyl aldehyde Natural;  
(19) 0.05-0.3% 3-ethoxy-4-hydrobenzaldehyde;  
(20) 0.05-1.00% 2-methoxy-4-allyl phenol;  
(21) 0.05-0.30% 4-ethyl-alpha, alpha-dimethyl- benzenepropanal;  
5 (22) 0.05-6.0% 2-trans-3,7-dimethyl-2,6-octadien-8-ol;  
(23) 0.05-0.30% isobutyl quinoleine;  
(24) 0.05-2.0% 5-methyl-2-isopropyl cyclohexanol;  
(25) 0.05-0.3% 4-isopropyl-1-methyl cyclohexan-3-one;  
(26) 0.05-2.0% methyl ionone (mixture of isomers);  
10 (27) 0.05-2.0% 3-buten-2-one, 3 methyl-4-(2,6,6-trimethyl-2-cyclohex-1-yl);  
(28) 0.05-0.90% para-hydroxy phenyl butanone crystals;  
(29) 0.05-4.0% 4-methyl-2-phenyl-3,6-dihydropyran;  
(30) 0.05-0.30% 2-(1,1-dimethylethyl)-4-methyl-cyclohexanol;  
(31) 0.05-6.0% 1-methyl-4-isopropyl-1-cyclohexen-8-ol;  
15 (32) 0.05-0.3% 4-hydroxy-3-methoxy benzaldehyde; and  
(33) 0.05-0.3% 2,4-diethoxy-5-methyl-pyrimidine.

For cosmetic compositions an amount of 0.125-66.35%, particularly 1.8-60%, more particularly 1.8- 35%, with a specific range being 1.8-32.5%, and more specific ranges being 2.5-30%, 25-27%, and 20% by weight based on the total amount of  
20 fragrance component added to make the cosmetic composition can be used to achieve the desired effect.

The use of the fragrance enhancing compositions make the use of conventional fragrances more effective in controlling underarm malodor and may also result in the ability to use lower amounts of fragrances to achieve underarm odor masking  
25 performance equivalent to compositions not containing such fragrance enhancing compositions. Although it is possible to use the fragrance enhancing compositions of this invention as the sole fragrance in cosmetic products such as deodorants and/or antiperspirants, it has been found preferable (for aesthetic reasons to give a more rounded fragrance) to use at least a portion of conventional fragrances in the cosmetic  
30 compositions.

The conventional fragrances that can be combined with the fragrance enhancing compositions of the invention include those described in PCT application WO 97/30689 and incorporated by reference in its entirety herein for its description of fragrances. Specific non-limiting examples of suitable fragrances include those  
5 selected from the group consisting of those described therein. Specific groups include:

(a) esters of salicylic acid such as hexyl salicylate, hexenyl salicylate, isoamyl salicylate, benzyl salicylate and cyclohexyl salicylate;

(b) esters of cinnamic acid such as amyl cinnamate, cinnamyl cinnamate and  
10 methyl cinnamate;

(c) miscellaneous esters such as allyl cyclohexane propionate, amyl benzoate, para-tertiarybutylcyclohexyl acetate, cedryl acetate, cedryl formate, dihydro-isojasmonate, ethylene brassylate, ethyl undecylenate, geranyl anthranilate, geranyl phenyl acetate, linalyl benzoate, benzyl acetate, linalyl acetate, vetiveryl acetate;

(d) aldehydes such as amyl cinnamic aldehyde, cyclamen aldehyde, lillial, benzaldehyde, citronnellal, hydroxycitronellal;

(e) alcohols such as geraniol, linalool, nerol, phenyl ethyl alcohol, alpha terpineol, eugenol, isoeugenol, alpha-citronellol, dihydromyrcenol, auranliol, cedrol, phenyl heptanol, phenol hexanol, alpha-santalol, undecavertol (4-methyl-3-decen-5-  
20 ol), benzyl alcohol;

(f) ketones such as benzophenone, dodecalactone, gamma-n-methyl ionone, delta-undecalactone, gamma-undecalactone, laevo-carvone, beta-methylnaphthyl ketone;

(g) nitromusk such as musk ketone, musk tibetine, musk indanone.

25 The individual components listed above used to form the fragrance enhancing compositions of this invention are commercially available and may be obtained from suppliers of fragrances and specialty chemicals who are known to those skilled in the art.

The ability of the fragrance enhancing components of the invention to improve  
30 the performance of conventional fragrances may in some cases be due to synergy



between the various components of the overall fragrance component (the total of all fragrance ingredients used in a cosmetic product).

Each of the thirty-three components listed above have a sensory sniff rating as evaluated by panel tests. Such tests are described in the art and are well accepted as being appropriate ways of evaluating overall fragrance impact and effect on underarm malodor perception. An example of one such test is described in International Journal of Cosmetic Science, Volume 5, pages 85-95 (1983). In such tests numerical rating scales are used to establish the relative performance of each fragrance. One such scale is, for example 0-5 (0 means a high performance, 5-a poor performance). On such a scale the individual compositions listed above as the group from which the fragrance enhancing compositions would be made would each have a rating between 0-2. Such fragrance raw materials improve deodorancy and longevity of cosmetic products (for example, deodorant sticks) in conjunction with fragrance aesthetics. Since fragrances are sometimes responsible for skin irritation, it is also a benefit of the present invention that the overall amount of fragrance in a cosmetic products can be reduced by the use of the compositions of this invention.

The cosmetic compositions can include one or more active ingredients selected from, for example, a member selected from the group consisting of antiperspirant active materials, deodorant active materials, sunscreens, insect repellents, antifungal agents, antimicrobials (also called bacteriostats or antibacterials), and additional fragrances.

Where the composition contains an antiperspirant active, any of the known antiperspirant active materials can be utilized. These can be added as solutions, suspensions or directly during mixing. These include, by way of example (and not of a limiting nature), aluminum chlorohydrate, aluminum chloride, aluminum sesquichlorohydrate, zirconyl hydroxychloride, aluminum-zirconium glycine complex (for example, aluminum zirconium trichlorohydrate gly, aluminum zirconium pentachlorohydrate gly, aluminum zirconium tetrachlorohydrate gly and aluminum zirconium octochlorohydrate gly), aluminum chlorohydrate PG, aluminum chlorohydrate PEG, aluminum dichlorohydrate PG, and aluminum dichlorohydrate

PEG. The aluminum-containing materials can be commonly referred to as antiperspirant active aluminum salts. Generally, the foregoing metal antiperspirant active materials are antiperspirant active metal salts. In the embodiments which are antiperspirant compositions according to the present invention, such compositions  
5 need not include aluminum-containing metal salts, and can include other antiperspirant active materials, including other antiperspirant active metal salts. Generally, Category I active antiperspirant ingredients listed in the Food and Drug Administration's Monograph on antiperspirant drugs for over-the-counter human use can be used. In addition, any new drug, not listed in the Monograph, such as  
10 aluminum nitrate hydrate and its combination with zirconyl hydroxychlorides and nitrides, or aluminum-stannous chlorohydrates, can be incorporated as an antiperspirant active ingredient in antiperspirant compositions according to the present invention.

Antiperspirant actives can be incorporated into compositions according to the  
15 present invention in amounts in the range of 0.1 - 30%, preferably 15 - 25%, by weight, of the total weight of the composition. The amount used will depend on the formulation of the composition. For example, at amounts in the lower end of the broader range (for example, 0.1 - 10%), the antiperspirant active material will not substantially reduce the flow of perspiration, but will reduce malodor, for example, by  
20 acting as an antimicrobial material.

For embodiments of the invention which contain an antiperspirant (either at a level denominated "deodorant" or at a level denominated "antiperspirant") it is preferred that a stabilizing agent also be included. Examples of suitable stabilizing agents include cosmetically acceptable alkali metal salts, bases, amines and other  
25 nitrogen containing compounds, particularly guanidine carbonate (described in U.S. Patent 5,490,979 and assigned to the same owner as this application).

When a bacteriostat composition is included in the cosmetic products of this invention such known bacteriostats may include bacteriostatic quaternary ammonium compounds (such as cetyl-trimethylammonium bromide), 2-amino-2-methyl-1-  
30 propanol (AMP), cetyl pyridinium chloride, 2, 4, 4'-trichloro-2'-

hydroxydiphenylether (Triclosan), N-(4-chlorophenyl)-N'-(3,4-dichlorophenyl)urea (Triclocarban) and various zinc salts (for example, zinc ricinoleate). The bacteriostat can, illustratively, be included in the composition in an amount of 0.01-1.0% by weight, of the total weight of the composition. Triclosan, can illustratively be  
5 included in an amount of from 0.05% to about 0.5% by weight, of the total weight of the composition.

If sunscreens are used conventional agents may be included.

The base for cosmetic compositions made with the fragancing materials of this invention include soap based deodorants, especially those made with one or more  
10 glycols (propylene glycol, dipropylene glycol, tripropylene glycol, tetrapropylene glycol and/or other polypropylene glycols); silicone based deodorants and antiperspirants, especially those made with fatty alcohols.

Products made as cosmetic compositions may include antiperspirants and/or deodorants, deodorant soaps, body washes, creams, lotions, scented cosmetic products  
15 such as colognes and perfumes.

In one embodiment for a deodorant stick with such efficacy, fragrance raw materials should be used in an amount between 0.001% and 25.00% of the fragrance (neat composition) portion of the composition, particularly between 0.001% and 20.00%, more preferably between 0.05% and 15.00% of the fragrance, and even more  
20 preferably between 0.50% and 10.00% of the fragrance.

Deo-Key™ compositions combine fragrance raw materials such as examples described below. The examples listed below describe compositions used in a range of 1.8-32.6% based on the total fragrance component. For example 30% of a fragrance used at a 10% level would give a maximum level for the Deo- Key composition of  
25 3.00% by weight of the overall cosmetic product. The following embodiments show how ranges of various fragrance components can be combined wherein the amounts listed are percents of the total fragrance component (unless another standard is listed such as "overall product").

Floral Wood Deo-Key™ Fragrance Enhancer

	<u>Ingredient</u>	<u>Range A</u>	<u>Range B</u>
	Damascone Alpha	0.02-0.50	0.05-0.30
5	Rootanol 100	0.02-0.50	0.05-0.30
	Carvone Laevo	0.02-0.50	0.05-0.30
	Benzyl Propionate	0.20-1.20	0.40-0.90
	Cyclamen Aldehyde	0.50-2.50	1.00-2.00
	Orange Oil Morocco	2.00-8.00	3.00-6.00
10	Citronellol Dextro	2.00-8.00	3.00-6.00
	Pelargonyl	2.00-8.00	3.00-6.00
	Total	6.76-29.20	10.6-21.8

Citrus Wood Deo-Key™ Fragrance Enhancer

	<u>Ingredient</u>	<u>Range A</u>	<u>Range B</u>
15	Nonyl Aldehyde	0.002-0.1	0.005-0.05
	Decyl Aldehyde	0.002-0.1	0.005-0.05
	Cis-3-Hexenyl Salicylate	0.02-0.4	0.05-0.30
	Citral Lemarome	0.02-0.4	0.05-0.30
	Cyclamen Aldehyde	0.20-1.20	0.40-0.90
20	Citronellol Dextro	0.8-2.40	1.00-2.00
	Iralia Total	0.8-2.40	1.00-2.00
	Total	1.84-7.00	2.5-5.6

Mint Deo-Key™ Fragrance Enhancer

	<u>Ingredient</u>	<u>Range A</u>	<u>Range B</u>
25	4-isopropyl-1-methyl cyclohexan-3-one {Menthone Laevo}	0.02-0.40	0.05-0.30
	Ethyl Vanillin	0.02-0.40	0.05-0.30
	Decyl Aldehyde Natural {Decanal Natural 951512}	0.1-0.5	0.15-0.40
30	5-Methyl 2-Isopropyl Cyclohexanol {Menthol Laevo}	0.8-2.40	1.00-2.00
	Methyl Ionone Gamma Coeur	0.8-2.40	1.00-2.00

Geraniol	2.00-7.00	3.00-6.00
Total	3.74-13.10	5.3-11.0

It should be noted that other embodiments can contain more than the described totals for the compositions listed above, provided that the same ratios of the ingredients for each composition are maintained and a multiple of these ratios is used to give a total amount greater than the specific embodiments listed above.

The cosmetic compositions in which this invention can be used can take various forms including sticks, gels, soft solids, creams, liquids (for example, roll-ons), and aerosols.

## 10 SOLIDS

### Solid Stick "A"

	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
15	aluminum zirconium tetrachlorohydrate-gly	15-25	18-22
	volatile silicone (for example cyclomethicone)	30-60	45-55
20	stearyl alcohol	5-15	8-12
	talc	5-15	8-12
	hydrogenated castor oil	0-5	1-3
	PPG-14 butyl ether	0-3	1-2
25	fragrance component of which 2.5- 30% is the Deo-Key™ composition (for example 2% of the overall stick)	0.1-10	1-3
	alantoin	0.01-1	0.05-0.5
	glyceryl stearate	0.01-1	0.05-0.5
	PEG 100 stearate	0.01-1	0.05-0.5
30	color (optional)	0.001-0.1	0.005-0.05

### Solid Stick "B" (deodorant)

	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
	SD alcohol 40	10-80	40-70
35	propylene glycol	5-20	10-15

	sodium stearate	2-10	6-8
	water	0-20	10-15
5	fragrance component of which 2.5- 30% is the Deo-Key™ composition	0.1-10	1-3
	trisodium EDTA	0.05-0.5	0.1-0.4
	color (optional)	0.001-0.01	0.005-0.01
	<u>Solid Stick C (deodorant)</u>		
10	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
	Solvent (selected from a range of glycols as described for Stick "D")	5-88	60-75
15	water	1-50	10-20
	compatible gelling agent	1- 10	4-8
	emollient	0-5	1-2
	antibacterial agent	0.01-2.0	0.05-0.5
	anti-irritancy agent	0.1-10	1-3
20	fragrance component of which 2.5- 30% is the Deo-Key™ composition (for example 2% of the overall stick)	0.1-10	0.5-3
	<u>Solid Stick D (deodorant)</u>		
25	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
	glycol component (one or more of glycols such as propylene glycol, di-, tri-, tetra, and higher propylene glycols)	60-98	65-75
30	sodium stearate	0-10	6-8
	water	0-40	10-25
35	fragrance component of which 2.5- 30% is the Deo-Key™ composition (for example 2% of the overall stick)	0.1-10	0.5-3

GELSGel "A"

	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
5	cyclomethicone and dimethicone copolyol	5-30	8-10
	cyclomethicone	60-90	70-80
	aluminum chlorohydrate	10-25	
	propylene glycol	10-20	12-18
	water	10-30	15-25
10	fragrance component of which 2.5- 30% is the Deo-Key™ composition (for example 2% of the overall product)	0.5-10	1-3

CREAMS15 Cream "A"

	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
	aluminum chlorohydrate	10-25	15-22
	aluminum chloride	5-15	6-12
	water	40-70	50-65
20	glyceryl stearate	1-20	5-15
	PEG-40 stearate	1-20	5-15
	cetyl palmitate or synthetic spermaceti	1-10	3-7
	glycerin	1-10	2-8
	dimethicone	1-10	2-8
25	isopropyl palmitate	1-10	2-5
	petrolatum and lanolin alcohol	1-10	2-6
	lanolin wax	1-10	2-8
	hydroxypropyl methylcellulose	0.5-1.5	0.8-1.2
30	fragrance component of which 2.5-30% is the Deo-Key™ composition (for example 1% of the overall product)	0.1-10	1-3
	titanium dioxide	0.1-1	0.2-0.8

lanolin	0.5-1	0.6-0.8
propyl paraben	0.05-	0.1-0.2
mineral oil	0.5-1	0.6-1

LIQUIDS5 Roll-on "A" (antiperspirant)

<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
aluminum chlorohydrate (for example 21%)	10-21	18-22
water (for example 67%)	50-80	65-75
PPG-11 stearyl ether (for example 7%)	5-10--	6-8
10 Steareth-2 (for example 5%)	2-10	4-8
Steareth-20 (for example 5%)	2-10	4-8
fragrance component of which 2.5-30% is the Deo-Key™ composition (for example 1% of the overall product)	0.1-10	1-3

15 Roll-on "B" (antiperspirant)

<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
zirconium-aluminum glycine hydroxychloride complex	10-25 (for example 20%)	18-22
20 water	20-40 (for example 24.3%)	24-30
PEG-40 stearate	5-15 (for example 10%)	8-12
25 glyceryl stearate	5-15 (for example 10%)	8-12
glycerine	5-10 (for example 6.8%)	6-8
refined paraffin	4-10 (for example 6.2%)	5-9
30 isopropyl palmitate	5-10 (for example 7.3%)	6-9
magnesium aluminum silicate	10-20 (for example 15.2%)	12-18



fragrance component of which 2.5-30% 0.1-10 1-3  
 is the Deo-Key™ composition  
 (for example 1.5% of the overall stick)

5 Roll-on "C"

	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
10	aluminum chlorohydrate	10-25 (for example 21%)	15-22
	cyclomethicone	40-80 (for example 70%)	60-70
	quaternium-18 hectorite	0-6 (for example 4%)	3-5
15	SD alcohol 40 (3.1% by volume)	1-4 (for example 2%)	2.5-3.5
	Steareth-20	0-4 (for example 2%)	1-3
20	fragrance component of which 2.5-30% is the Deo-Key™ composition (for example 1% of the overall product)	0.5-10	1-3

Roll-on "D"

	<u>Ingredient</u>	<u>Ranges</u>	<u>Preferred Ranges</u>
25	cyclomethicone	10-80	35-55
	cyclomethicone and dimethicone copolyol	5-20	10-15
	aluminum zirconium tetrachlorohydrate-gly	10-25	15-22
30	propylene glycol	5-15	7-12
	water	0-5	2-4
35	fragrance component of which 2.5-30% is the Deo-Key™ composition	0.5-10	1-3

AEROSOLSAerosol "A"

An aerosol formulation made with the following amounts of ingredients based on the total weight of the composition: aluminum chlorohydrate (for example 10-22%);  
 5 isobutane (for example 30-45%); cyclomethicone (for example 10-20%); isopropyl myristate (for example 2-5%); dimethicone (for example 2-4%); quaternium-18 hectorite (for example 1-2%); propylene carbonate (for example 0.5-1%); effective amount of a fragrance component of which 2.5-30% is the Deo-Key™ composition (for example 1% of the overall product).

10 Aerosol "B"

An aerosol formulation made with the following amounts of ingredients based on the total weight of the composition: SD alcohol 40 (for example 10-30%); isobutane (for example 10-30%); propane (for example 10-20%); propylene glycol (for example 5-20%); butane (for example 5-10%); effective amount of a fragrance component of  
 15 which 2.5-30% is the Deo-Key™ composition (for example 1% of the overall product); effective amount of Triclosan.

Pump Spray "A"

A pump spray formulation made with the following amounts of ingredients based on the total weight of the composition: cyclomethicone (for example 40-60%); SD  
 20 alcohol 40B (anhydrous alcohol) (for example 20-40%); PEG-3 myristyl ether (for example 2-10%); C12-15 alcohol benzoates (for example 2-10%); water (for example 2-10%); effective amount of a fragrance component of which 2.5-30% is the Deo-Key™ composition; dimethicone (for example 0.5-5%); zinc phenosulfonate (for example 0.1-1.0%).

25 Pump Spray "B" - wherein amounts are based on the total weight of the composition.

<u>Ingredient</u>	<u>Ranges of Ingredients</u>	<u>Particular Example</u>
cyclomethicone	30-50%	33%
mineral oil	1-10%	2.0%
30 phenyltrimethicone	1-10%	5.0%

	cyclomethicone and dimethicone copolyol	0.5-10%	10%
	polysorbate 20	0.5-5%	1.0%
5	aluminum chlorohydrate	5-25%	10-25%
	fragrance component of which 2.5-30% of the composition is the Deo-Key™ composition	0.1-10	

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EXAMPLES

The following Examples are offered as illustrative of the invention and are not to be construed as limitations thereon. In the Examples and elsewhere in the description of the invention, chemical symbols and terminology have their usual and customary meanings. Temperatures are in degrees C unless otherwise indicated. The amounts of the components are in weight percents based on the standard described; if no other standard is described then the total weight of the compositions is to be inferred. Various names of chemical components include those listed in the CTFA International Cosmetic Ingredient Dictionary (Cosmetics, Toiletry and Fragrance Association, Inc., 4<sup>th</sup> ed. 1991). Note that the antiperspirant actives described in the examples and elsewhere are usually added in the form of a solution for example as a 50% solution. Effective amounts of fragrance component are in the range of 0.1-10% by weight based on the total weight of the cosmetic composition, a portion of which is described as being the Deo-Key composition.

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Example 1 - General Method A

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The Deo-Key fragrance enhancing compositions of this invention may be made by conventional mixing techniques known to those skilled in the art. Such techniques will take into account the solid or liquid nature of the products involved and the need to pre-dissolve or melt ingredients before they are blended. The solid ingredients should be added first and dissolved or melted until a liquid is obtained by heating in a sand bath (for example, at a temperature in the range of 40 -60 degrees C). The liquid ingredients may then be added in a subsequent step and the final

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mixture will be completed at room temperature with stirring (for example, at 500 RPM with a stirring machine AM 3000 D from HEIDOLPH).

For example, in one method the ingredients are weighed in a beaker which has been tared (such as with a PJ3600 Delta Range balance from METTLER). The total quantity of Deo-Key material should be calculated to have a minimum quantity of individual material greater than 1 gram (minimum weighable quantity). If any error occurs it should be corrected by restarting the entire weighing process; thus, this sequential methodology of weighing in the same beaker avoids the loss of ingredients during transfer from one beaker to another.

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#### Example 2

Test samples can be prepared by taking ten 6 cm diameter (2.5 inches) circles of Webril® pads and treating them with a selected mount of test product. The test sample is rubbed or applied on one side of the pad. Each pad is then placed in a plastic disposable Petri dish which has been labeled. Each pad is allowed to dry for 24 hours at room temperature with the lid of the Petri dish removed. After the 24 hour period, a solution of synthetic malodor material is applied to each pad in an amount of about 9X excess of the sample test product by applying it to the treated surface of the pad. The solution is added dropwise to cover the entire surface of the treated pad. The sample is allowed to dry for an additional 2 hours before placing the lids on the Petri dishes. The plates are stored at room temperature until the 48 hour odor evaluation is performed. The odor assessment is done by a number of trained personnel, using some preset numerical scale.

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## We Claim

1. An antiperspirant or deodorant composition comprising a fragrance and a fragrance enhancing component, wherein the fragrance enhancing component comprises at least six non-polycyclic, non-nitromusk materials selected from the group consisting of:
- (1) 0.5-1.0% Cinnamon Leaf Oil Ceylan;
  - (2) 0.01-0.3% Vetiver Oil Java;
  - (3) 0.5-6.0% Orange Oil Morocco;
  - (4) 0.05-6.0% Patchouli Oil;
  - 10 (5) 0.05-4.0% Iso Methyl Cedryl Ketone A;
  - (6) 0.05-6.0% Pelargonyl;
  - (7) 0.05-0.9% Cassis 345 B;
  - (8) 0.005-0.05% nonyl aldehyde;
  - (9) 0.005-0.05% decyl aldehyde;
  - 15 (10) 0.05-10.0% amyl cinnamic aldehyde;
  - (11) 0.05-0.9% benzyl propionate;
  - (12) 0.05-0.30% L-1-methyl-4-isopropenyl-6-cyclohexene-2-one;
  - (13) 0.05-0.30% cis-3-hexenyl salicylate;
  - (14) 0.05-0.70% 3,7-dimethyl-2,6-octadienal;
  - 20 (15) 0.05-2.00% 3-7-dimethyl-6-octen-1-ol;
  - (16) 0.05-0.9% 2-methyl-3-(para-isopropylphenyl) propionaldehyde;
  - (17) 0.05-0.9% 2-buten-1-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl);
  - (18) 0.005-0.05% decyl aldehyde natural;
  - (19) 0.05-0.3% 3-ethoxy-4-hydrobenzaldehyde;
  - 25 (20) 0.05-1.00% 2-methoxy-4-allyl phenol;
  - (21) 0.05-0.30% 4-ethyl-alpha, alpha-dimethyl- benzenepropanal;
  - (22) 0.05-6.0% 2-trans-3,7-dimethyl-2,6-octadien-8-ol;
  - (23) 0.05-0.30% isobutyl quinoleine;
  - (24) 0.05-2.0% 5-methyl-2-isopropyl cyclohexanol;
  - 30 (25) 0.05-0.3% 4-isopropyl-1-methyl cyclohexan-3-one;

- (26) 0.05-2.0% methyl ionone (mixture of isomers);  
(27) 0.05-2.0% 3-buten-2-one, 3 methyl-4-(2,6,6-trimethyl-2-cyclohex-1-yl);  
(28) 0.05-0.90% para-hydroxy phenyl butanone crystals;  
(29) 0.05-4.0% 4-methyl-2-phenyl-3,6-dihydropyran;  
5 (20) 0.05-0.30% 2-(1,1-dimethylethyl)-4-methyl-cyclohexanol;  
(31) 0.05-6.0% 1-methyl-4-isopropyl-1-cyclohexen-8-ol;  
(32) 0.05-0.3% 4-hydroxy-3-methoxy benzaldehyde; and  
(33) 0.05-0.3% 2,4-diethoxy-5-methyl-pyrimidine;  
based on the total amount of fragrance component in the composition, whereby the  
10 amount of fragrance used is at least 30% less than required to achieve the same  
deodorizing effect without the fragrance enhancing component.

2. A composition according to Claim 1 wherein the total amount of the  
fragrance enhancing component is in the range of 0.125-66.35% by weight based on  
15 the total fragrance component in the composition.

3. A composition according to Claim 2 wherein the total amount of the  
fragrance enhancing component is in the range of 1.8-60% by weight based on the  
total fragrance component in the composition.  
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4. A composition according to Claim 3 wherein the total amount of the  
fragrance enhancing component is in the range of 1.8-35% by weight based on the  
total fragrance component in the composition.

25 5. A cosmetic composition according to Claim 1 wherein the fragrance  
comprises at least one member selected from the group consisting of:

(a) esters of salicylic acid selected from the group consisting of hexyl  
salicylate, hexenyl salicylate, isoamyl salicylate, benzyl salicylate and cyclohexyl  
salicylate;

30 (b) esters of cinnamic acid selected from the group consisting of amyl  
cinnamate, cinnamyl cinnamate and methyl cinnamate;

(c) esters selected from the group consisting of as allyl cyclohexane propionate, amyl benzoate, para-tertiarybutylcyclohexyl acetate, cedryl acetate, cedryl formate, dihydro-isojasmonate, ethylene brassylate, ethyl undecylenate, geranyl anthranilate, geranyl phenyl acetate, linalyl benzoate, benzyl acetate, linalyl acetate, 5 vetiveryl acetate;

(d) aldehydes selected from the group consisting of amyl cinnamic aldehyde, cyclamen aldehyde, lillial, benzaldehyde, citronnellal, and hydroxycitronellal;

(e) alcohols selected from the group consisting of geraniol, linalool, nerol, phenyl ethyl alcohol, alpha terpineol, eugenol, isoeugenol, alpha-citronellol, 10 dihydromyrcenol, aurantiol, cedrol, phenyl heptanol, phenol hexanol, alpha-santalol, undecavertol (4-methyl-3-decen-5-ol), and benzyl alcohol;

(f) ketones selected from the group consisting of benzophenone, dodecalactone, gamma-n-methyl ionone, delta-undecalactone, gamma-undecalactone, laevo-carvone, and beta-methylnaphthyl ketone; and

15 (g) nitromusks selected from the group consisting of musk ketone, musk tibetine, and musk indanone.

6. A composition according to Claim 1 further comprising 0.1-30 weight % of an antiperspirant active based on the total weight of the composition.

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7. A composition according to Claim 6 wherein the antiperspirant active is selected from the group comprising: aluminum chlorohydrate, aluminum chloride, aluminum sesquichlorohydrate, zirconyl hydroxychloride, aluminum-zirconium glycine complex (for example, aluminum zirconium trichlorohydrate gly, aluminum 25 zirconium pentachlorohydrate gly, aluminum zirconium tetrachlorohydrate gly and aluminum zirconium octochlorohydrate gly), aluminum chlorohydrate PG, aluminum chlorohydrate PEG, aluminum dichlorohydrate PG, and aluminum dichlorohydrate PEG.

30 8. A cosmetic composition according to Claim 1 further comprising a bacteriostat composition.

9. A cosmetic composition according to Claim 8 wherein the bacteriostat composition is selected from the group consisting of bacteriostatic quaternary ammonium compounds; 2-amino-2-methyl-1-propanol, cetyl pyridinium chloride; 2,  
5 4, 4'-trichloro-2'-hydroxydiphenylether (Triclosan); N-(4-chlorophenyl)-N'-(3,4-dichlorophenyl)urea (Triclocarban); and bacteriostatic zinc salts.



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(54) Title: FRAGRANCE ENHANCING COMPOSITIONS WITH NON-POLYCYCLICS

(57) Abstract: This invention relates to fragrance enhancing compositions which are capable of controlling malodor from a human body to a significant extent thereby reducing the overall amount of fragrance required to achieve a satisfactory cosmetic product, especially an underarm product. The fragrance enhancing compositions of this invention are made by supplementing the conventional fragrance in an antiperspirant and/or deodorant composition with a fragrance enhancing component comprising at least six members from a selected group of non-polycyclic, non-nitromusk materials.

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# INTERNATIONAL SEARCH REPORT

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 6 110 449 A (D.R. BACON ET AL) 29 August 2000 (2000-08-29) examples I-XII	1,5-7

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